

# SCOPE OF WORK

## I-66 CORRIDOR TRANSIT/TDM STUDY

Issue Date: September 29, 2008

Title: I-66 CORRIDOR TRANSIT/TDM STUDY

Commodity Code: 918-12 Consulting Services

Issuing Agency: Department of Rail and Public Transportation

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# I-66 Corridor Transit/TDM Study

## I. PURPOSE

DRPT in coordination with local jurisdictions and partnering agencies is conducting a public transit/Transportation Demand Management (TDM) study for the I-66 corridor from Washington D.C. to Haymarket, Virginia. The study will examine operational aspects and potential applications for local and regional bus improvements, bus rapid transit (BRT) implementation, transportation system management (TSM) improvements, and transportation demand management (TDM) improvements in the I-66 corridor. The study will also include the examination of potential services on the parallel facilities (Route 50 and Route 29) to serve local as well thru traffic.

The purpose of this study is to explore potential short term and medium term improvements for the I-66 Corridor inside the Capital Beltway and to provide input into the upcoming multimodal environmental study that will be conducted for the I-66 Corridor outside the Capital Beltway. In this context this study will:

- Inventory existing rail service, bus service, park and ride facilities and TDM programs in the corridor
- Review operational considerations for the expansion of transit services
- Analyze the options to expand transit services in the corridor including Bus Rapid Transit (BRT) and reverse commute options
- Address use of signal priority technologies for buses
- Analyze park and ride needs in the corridor

A more detailed version of the scope of services is contained in the following sections of this document.

## II. BACKGROUND

The Commonwealth of Virginia is reviewing various multi-modal solutions to manage existing congestion and expected growth in the I-66 Corridor. The existing transportation infrastructure, both highway and transit, are heavily utilized and experience frequent congestion. Projected growth in population and employment are expected to significantly increase in future years and additionally strain the transit and highway capacity.

I-66 is the main east-west Interstate Highway in Northern Virginia. Segments of I-66 between Gainesville and Washington, D.C. are congested during morning and evening rush hours. The I-66 corridor serves the District of Columbia, Arlington County, Fairfax County (to include Town of Vienna), Loudoun County (to include Town of Haymarket), and the cities of Fairfax, Falls Church, Manassas, and Manassas Park.

I-66 is a complex mix of transportation facilities and services; including highway (general purpose and HOV), commuter rail, heavy rail, and local and regional bus service.

- The highway lane configuration varies throughout I-66. There are two lanes in each direction from the Theodore Roosevelt Bridge to the Capital Beltway. There are three travel lanes in each direction from just west of the Capital Beltway Interchange to the I-66/Route 50 interchange at Fair Oaks. The right shoulder of I-66 between the Beltway and Route 50 is used as a travel lane in the peak direction only during the rush hours to maintain three general travel lanes while providing the left lane as an HOV-2 lane. There are 4 lanes in each direction from the I-66/Route 50 Interchange to the I-66/Route 234 Bypass Interchange at Manassas. There are two lanes in each direction from the I-66/Route 234 Bypass Interchange to the I-66/Route 15 Interchange at Haymarket and beyond.
- Inside the Capital Beltway all eastbound lanes are reserved for HOV-2 and motorcycles from 6:30 AM to 9:00 AM and all westbound lanes are reserved for HOV-2 and motorcycles from 4:00 PM to 6:30 PM. Outside the Capital Beltway, the left lane of I-66 between Manassas and the Capital Beltway is reserved for HOV-2 and motorcycles from 5:30 AM to 9:30 AM and 3:00 PM to 7:00 PM.
- Metrorail's Orange line operates on two tracks from the Vienna/Fairfax-GMU Station through Washington, D.C. and into Maryland. The Metrorail trains operate above ground in the I-66 median from Vienna/Fairfax-GMU Station to just west of George Mason Drive (Exit 71) where the trains enter a tunnel and continue underground to Ballston and into Washington, D.C.
- Virginia Railway Express (VRE) provides commuter rail service that operates parallel to the I-66 Corridor originating at Broad Run, with stops in Manassas, Manassas Park, Fairfax, Alexandria, Arlington, and Washington D.C.
- Local and regional bus service is provided on I-66 and on adjacent facilities by the Washington Metropolitan Area Transit Authority, the Potomac and Rappahannock Transportation Commission, Fairfax County, Loudoun County, and the cities of Fairfax and Falls Church.
- Two bicycle/pedestrian trails, the Washington and Old Dominion Trail (W/O&D) and the Martha Custis Trail, roughly parallel 9 miles of I-66 from the Capital Beltway east to Rosslyn, and in some cases, are located in the I-66 right-of-way.

### **III. TECHNICAL ADVISORY COMMITTEE**

DRPT will partner with a Technical Advisory Committee (TAC) on this planning effort. The TAC, which has already been contacted, will be composed of staff from the affected jurisdictions, partnering transit agencies and regional bodies, including:

- Arlington County
- City of Fairfax
- City of Falls Church
- City of Manassas
- Fairfax County
- Loudoun County

- Prince William County
- Metropolitan Washington Council of Governments (MWCOG)
- Potomac and Rappahanock Transportation Commission (PRTC)
- Northern Virginia Transportation Authority (NVTA)
- Northern Virginia Transportation Commission (NVTC)
- Virginia Department of Transportation (VDOT)
- Virginia Railway Express (VRE)
- Washington Metropolitan Transit Authority (WMATA)

#### **IV. SCOPE OF WORK**

The I-66 Corridor Transit/TDM Study will be developed in a highly collaborative atmosphere that will require ongoing coordination with DRPT, VDOT, the TAC, local elected officials that represent the corridor and the general public. The study will include considerable public input through stakeholder meetings, focus groups and public meetings. Although the preparation of the technical analysis and resulting documents will be the responsibility of the Contractor, the policy direction for the I-66 Corridor Transit/TDM Study will be provided by the DRPT Project Manager with input from VDOT, the TAC, and other stakeholders.

The tasks listed in this document are the critical tasks necessary to conduct the I-66 Corridor Transit/TDM Study. While the tasks are listed separately, many tasks will need to be developed using the findings from other tasks (e.g., the park and ride recommendations will need to be developed using the ridership projections for the recommended transit improvements). The Contractor will provide their best strategy for completing each task and is encouraged to suggest any additional tasks deemed necessary as part of their strategy. The Contractor will propose a detailed budget and schedule for the work outlined in this scope.

##### **Task 1 – Detailed Work Program**

The Contractor shall develop a detailed work program that includes all administrative and technical elements necessary for the direction and management of the I-66 Corridor Transit/TDM Study prior to notice to proceed on additional tasks. The Contractor will submit the detailed work program, including a project timeline and list of deliverables, to the DRPT Project Manager for review and approval. In developing the project timeline, the Contractor must allow for three to five business days for the DRPT Project Manager's review and edits, prior to distribution to the TAC.

##### **Task 2 – Public / Agency Participation Program and Market Research**

The Contractor, in coordination with DRPT, shall develop a public/agency participation program that continues throughout the study process. The program will provide a forum for public input into the planning process, and educate citizens and all regional transportation agencies on the findings of the study. At a minimum, the Contractor will do the following:

- Recognizing that only 4-6 percent of the work population attends public meetings, the Contractor will develop an innovative approach that will significantly increase

the participation of the work population. DRPT will provide to the Contractor, as input into the development of the communications approach, all of its pertinent commuter research.

- Determine the steps and process to carry this approach through major milestones.
- Document all public comments received. Incorporate the ideas and concerns of the public into the study as appropriate.
- Prepare presentation and education materials for up to six (6) meetings of local governing boards, agencies and community groups (up to two rounds of up to three meetings each).
- Prepare, conduct and analyze the results of a market research survey for the project. The Contractor will propose a methodology and timeline for the market research activities.
- Develop a recommendation for additional input gathering such as focus groups, public and agency workshops, on-line forums, information booths, and quantitative research and information distribution techniques.
- Recommend a schedule of appropriate public information meetings distributed across the corridor. Up to six such meetings are proposed (up to two rounds of meetings at up to three different venues each time). The Contractor will be expected to prepare materials, attend meetings, and summarize comments from meetings.
- Document results for each outreach effort and propose and implement methods for distributing project information including, but not limited to, timelines, milestones, study updates and final decisions and plans. Make materials and information developed for the public participation program available through direct mailings and other media as deemed appropriate by DRPT.
- Provide study materials for the DRPT website. The Contractor will not need to maintain a separate website for the project.

The Contractor will submit a public participation work plan and provide the associated budgets for each element of the market research and public/agency participation program. DRPT and the Contractor will agree upon the public/agency participation program and the Contractor will include this in the budget and detailed work program submitted to the DRPT Project Manager prior to receiving notice to proceed.

### **Task 3 – Data Collection**

Under a separate task order, DRPT contracted with Parson Transportation Group for the initial data collection. A draft report was developed and comments were received by the TAC. The contractor will be responsible for finalizing the report (a copy of the

draft report and comments from the TAC will be made available). Prior to notice to proceed, the Contractor and DRPT will determine any additional data needs. The Contractor will submit as part of the detailed work program a summary of the proposed data collection activities, the budget, and schedule for any additional data collection.

#### **Task 4 – TAC Committee Meetings**

The TAC will participate in the study process, review all documents prepared for the study, and provide recommendations to the DRPT Project Manager and Contractor throughout the project. The Contractor must be prepared to respond to work requests made by the TAC as directed by the DRPT Project Manager. The Contractor should expect to attend and prepare materials for up to ten (10) Technical Advisory Committee meetings. As with the previous study, DRPT staff will administer and coordinate the TAC meetings (making room reservations in coordination with the TAC members' facilities and setting up the room). The Contractor will be responsible for taking/distributing the meeting minutes).

#### **Task 5 – Regional Authority and Commission Meetings**

The Contractor will periodically update and seek feedback from the Northern Virginia Transportation Commission (NVTC), the Potomac and Rappahannock Transportation Commission (PRTC), and the Northern Virginia Transportation Authority. The Contractor should expect to attend and prepare materials for up to six (6) Commission meetings and two (2) Authority meetings. The Contractor will prepare materials and provide all study-related deliverables to NVTA, NVTC, and PRTC. The Contractor will prepare a combined summary report of action items, comments, and recommendations from these meetings; evaluate the input; and give the DRPT Project Manager strategic recommendations based on this input.

#### **Task 6 – Purpose and Need**

The Contractor shall develop a detailed Purpose and Need document. This task will not produce a purpose and need statement that is a stand alone for a future DEIS. It will produce a purpose and need statement for this specific project that can be used as input to a future DEIS purpose and need statement. This document will be reviewed by the Technical Advisory Committee and approved by DRPT.

#### **Task 7 – Current and Baseline Conditions**

The Contractor shall provide a detailed summary of existing conditions and the adopted Metropolitan Washington Council of Government (MWCOC) CLRP projects. This detailed review will include roadway (general purpose and HOV), transit, TDM, and bike/pedestrian projects. Existing conditions and the CLRP network must be specified in detail and include a list of both existing services and the CLRP projects.

The Contractor will work with DRPT and the TAC to define the baseline transit and TDM conditions that will include the existing and planned transit service. The baseline will include, but is not limited to, the road network, local bus, express bus, bus rapid transit, heavy rail, commuter rail, carpooling, vanpooling, slugging, and park and ride lot facilities in the I-66 corridor for current year, 2015 and 2030. The I-66 corridor will be defined as including Route 50 and Route 29.

The Contractor will also provide all updated base mapping and aerial photography to perform this task. The Contractor will provide the baseline conditions to the DRPT Project Manager for approval.

#### **Task 8 – Market Demand Methodology and Forecasts**

The Contractor will develop a technical memorandum and maps detailing existing and future market demand. The Contractor will utilize existing and future MWCOC land use projections, census data, market research, and any other relevant data to examine potential markets for the corridor.

#### **Task 9 – BRT Definition and Station Sketch Planning**

As part of the alternatives development, the Contractor will describe and evaluate options for potential operation of BRT service. The Contractor will work with the DRPT and the TAC to establish consensus in the definition of bus rapid transit (BRT) for the corridor. The Contractor will define the footprint, operating characteristics, type of stops/stations, and bicycle/pedestrian accommodations needed. The contractor will also develop conceptual sketches of BRT stops that can be used at various types of stops and locations.

#### **Task 10 – Transit Alternatives Development**

Two different time horizons short (1-6 years) and medium (7-15 years) should be used in developing service and operational recommendations for the corridor and the corridor transit markets. Transit alternatives will need to address peak, non-peak and reverse commute needs. The transit alternatives will be compared against existing service and services planned in the CLRP.

##### **A. Short-Term Improvements**

The Contractor shall prepare an operational analysis of the transit services in the I-66 corridor, including services operating on the parallel facilities (Route 50 and 29). Based on a review of current transit services, planned changes to the jurisdictional service development plans, operational characteristics, and markets, the Contractor, in consultation with the TAC, will perform an operational analysis for the corridor and recommend capital and service improvements. The short-term recommendations will include increases in existing services, development of new services, examination of potential Transportation System Management (TSM) improvements (ITS, queue jumpers, etc.), sidewalk and bike improvements (including bicycle storage) around stations or stops, and other improvements that can be implemented in the short-term. The Contractor will perform an analysis and estimate the benefits of proposed services and projects (travel time, person throughput, ridership, etc.).

##### **B. Medium-Term Improvements**

The Contractor shall develop a report defining the range of medium-term transit alternatives for I-66 and the parallel facilities (Route 50 and 29). The medium-term improvements for the corridor will concentrate on bus rapid transit alternatives and long haul express service. Each alternative will include stop locations, feeder service, bike and pedestrian improvements (including storage), and any suggested TSM improvements that would improve the operation of the service. In developing the alignment and station/stop recommendations, the Contractor will review land use and make recommendations to optimize Transit Oriented Development (TOD). In addition, the Contractor will make recommendations for improved land use around any recommended stations or stops. The range of the medium-term alternatives could include, but is not limited to: long haul express service, BRT within the existing road network; BRT in the I-66 median (where Metrorail is not presently located, however designed so not to preclude Metrorail); BRT/HOV in one peak period lane in each direction; and BRT/HOV in two HOV lanes in each direction. Recommended improvements will include the need for additional amenities including maintenance and storage facilities.

As part of the evaluation of the services, the Contractor will analyze the impact of each of these alternatives on potential long-term improvements for transit (as articulated in previous studies) in the corridor and should consider how short and medium-term improvements can work to develop the corridor.

The Contractor will use the regional travel demand forecasting model and a sub mode post-processing model to estimate the affects on travel (travel time, person throughput, ridership, etc.) in both the HOV and general purpose lanes. The Contractor will analyze the results of the modeling effort and will, in consultation with the TAC and DRPT, develop a second round of alternatives for evaluation. The Contractor will perform a second model run on the revised alternatives. The Contractor will analyze the results of the revised medium alternatives and provide a report to DRPT and the TAC.

- **Travel Demand Modeling**

The Contractor will perform traffic and mode diversion analysis and demand forecasting. The Contractor will use the latest adopted Metropolitan Washington Council of Governments (MWCOC) cooperative forecasts and the latest version of the MWCOC transportation demand forecasting model (or an equivalent model approved by DRPT) as the base to project travel demand for the transit options selected for analysis and for estimating HOV usage. The Contractor will suggest appropriate modifications to the cooperative forecasts and the transportation demand



forecasting model.

- **Post-Process Sub Mode Choice Model**

The Contractor will also apply a post-process nested logit model developed for WMATA to more precisely examine sub mode choice, including access mode choice and more accurate assignment within the transit mode choice.

The Contractor will obtain an electronic copy and all appropriate back-up materials for the MWCOG transportation demand forecasting model, or any equivalent model proposed by the Contractor, and the post-process model. The Contractor will perform the travel demand analysis for all alternatives for current conditions, baseline (2015 and 2030) and each alternative (2015 and 2030).

The Contractor will provide projected travel demand forecasts, including transit assignments, for each of the medium-term alternatives. Deliverables will include both a methodology report and a results report.

#### **Task 11 – Sensitivity Analysis**

The Contractor will perform sensitivity analysis for up to three (3) variable scenarios such as access and egress points, station locations, and levels of transit service as requested by the DRPT Project Manager.

#### **Task 12 – TDM Strategies**

The Contractor will prepare recommended TDM strategies for the I-66 corridor. The strategies will be developed utilizing the expertise of the both the Commonwealth's and local jurisdictional TDM staff. The study will incorporate strategies to be implemented in the short and medium term.

#### **Task 13 – Park and Ride Lots**

The Contractor will use the transportation demand forecasts to develop recommendations for new and expanded park and ride facilities along the I-66 corridor. The recommendations will include the size, location and number of spaces needed for each facility based on the HOV and transit demand projections. The park and ride analysis will include both VRE and Metrorail needs. The following subtasks will need to be completed as part of the park and ride analysis:

##### **A. Inventory Existing Conditions**

VDOT NOVA Transportation Planning section staff will provide the following data:

- Existing commuter lot locations, their capacities and usage for the past years (2000 – 2008 inclusive).
- A copy of the 2003 NOVA Park and Ride Lot Feasibility Study.

- Electronic files with geocoded origins of commuters parking at each lot in GIS map format from the study above.
- Information on planned lots and lots being developed along with their status and estimated opening date.

The contractor will collect any additional information needed.

**B. Conduct License Plate Survey**

The Contractor will update the previous VDOT license plate survey for park and ride lots and survey Metrorail and VRE lots in the I-66 corridor (including lots in Arlington, Falls Church, Fairfax, Prince William, and Fauquier) in order to update market shed information. Updated license plate survey data from a recent Fairfax County survey should be available in the fall of 2008.

**C. Develop Demand Analysis Methodology and Forecasts**

The Contractor will develop and submit a technical memorandum detailing the methodology proposed to determine the demand for additional spaces in specific market areas. Estimates for demand for parking spaces will be developed for three (3) planning horizons (current, 2015, and 2030). The methodology will be reviewed by DRPT/VDOT and the Technical Advisory Committee before developing the actual estimates.

**D. Identify Opportunities for New and Expanded Lots**

The Contractor will work with local jurisdictions, transit provider, TDM staff, and VDOT to identify potential locations to construct new lots and expand existing lots. The Contractor will identify potential locations to meet the three (3) planning horizons.

**Task 14 – Cost/Revenue/Subsidy Projections**

The Contractor will prepare preliminary order of magnitude costs for each alternative developed. More detailed planning estimates of capital, operating, and maintenance costs, as well as revenue and subsidy projections, will be prepared for the short term and medium term (transit, TDM, TSM, and Park and Ride) recommendations. The costs should be provided in both current and year of expenditure dollars. The costs should be developed at a level of accuracy to serve as good planning estimates. The Contractor will document the cost estimating procedures and unit costs used in the analysis. Operations cost estimations should be based on rates utilized by the recommended individual providers for each service.

**Task 15 – Transit/TDM Recommendations**

The Contractor will prepare Transit/TDM recommendations for the corridor. The Contractor will use the findings and recommendations from each task performed to

inform the analysis in subsequent tasks. The Contractor shall utilize the results from purpose and need, the alternatives development, sensitivity analysis, TDM strategies, and park and ride analysis to prepare comprehensive short and medium-term Transit/TDM recommendations for the corridor.

The Contractor shall prepare detailed operating plans (including physical and operating characteristics); determine system requirements; estimate capital and operating cost; and determine storage and maintenance requirements. The Contractor will submit for approval the Transit/TDM recommendations to the DRPT Project Manager.

**Task 16 – Potential Revenue Sources**

The Contractor shall develop an analysis of potential revenue sources for the implementation of the recommended services and facilities.

**Task 17 – Final Report**

The Contractor shall compile and analyze the information from the previous tasks and submit a comprehensive draft report to the DRPT Project Manager for approval. The report will document the study process; analysis performed (including assumptions); the Transit/TDM recommendations; and potential revenue sources.

A final report will be submitted to the DRPT Project Manager. The Contractor will provide one copy of the report in electronic format for publication on the DRPT website, one camera ready copy of the report, 100 copies of the report on compact disc (CD), and 50 printed and bound copies of the report.

## **ATTACHMENT: PRICING PROPOSAL**

The method of payment for this Contract will be Firm Fixed Price. Fixed prices will be established for each task identified in the Project Scope of Work, and payment will not exceed this amount.

The Contractor shall provide a Pricing Proposal which provides a fixed cost for each task identified in the Project Scope of Work, the total fixed fee amount, and a total project cost. The Contractor shall provide support materials, which clearly document how these costs were calculated. This shall include:

- A. A list of work hours for each Contractor and Sub-Contractor proposed. The Contractor shall list all staff assigned to this project by name and number of hours per task and provide a summary of total work hours by firm proposed for the project.
- B. A list of costs for each Contractor and Sub-Contractor proposed. The Offeror shall provide a list of all staff assigned to the project by name and hourly rate and show total wage costs by person by task. Any additional costs such as overhead, fee and direct expenses do not have to be itemized by staff person or task; totals by firm are sufficient. The Offeror shall provide a summary of all costs by firm proposed for the project.
- C. Resumes for all staff assigned to the project shall be provided.



Virginia Department of Rail and Public Transportation

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